

WHAT IS CLAIMED IS:

1. A lever system for actuating one of a clutch and a transmission brake, the lever system comprising:

a lever having a first end portion, a second end portion, a first support point, and a second support point, the lever providing an actuating force for the one of the clutch and the transmission brake; and

a fulcrum displaceable between a first position engaging the lever at the first support point to a second position engaging the lever at the second support point;

wherein a displacement of the fulcrum from the first position to the second position changes the actuating force.

2. The lever system as recited in claim 1, wherein the one of the clutch and transmission brake is in a motor vehicle.

3. The lever system as recited in claim 1, further comprising:

an energy storage mechanism engaging at least one of the first end portion of the lever arm and the first support point, the energy storage mechanism including at least one of an elastomer and a metallic material and including one of a disk spring, a helical spring, a leg spring and a shock absorber; and

a pressure plate, wherein the second end portion of the lever arm acts on the pressure plate.

4. The lever system as recited in claim 3, wherein the second end portion of the lever acts indirectly on the pressure plate.

5. The lever system as recited in claim 1, wherein the fulcrum is radially displaceable.

6. The lever system as recited in claim 1, wherein the fulcrum is circumferentially displaceable.

7. The lever system as recited in claim 5, wherein the fulcrum is displaceable simultaneously both radially and circumferentially.
8. The lever system as recited in claim 7, further comprising a cage for guiding the fulcrum along a spiral segment.
9. The lever system as recited in claim 7, wherein the fulcrum is guided along at least one full spiral.
10. The lever system as recited in claim 7, wherein the displacement of the fulcrum is guided along a path in a running surface.
11. The lever system as recited in claim 8, wherein the fulcrum is movable on a smooth running surface.
12. The lever system as recited in claim 11, wherein the running surface is a surface of the lever and is flat.
13. The lever system as recited in claim 11, wherein the running surface is a surface of the lever and is concave.
14. The lever system as recited in claim 1, further comprising:
 - a pressure plate
 - a first axial bearing, the axial bearing being displaceable in an axial direction; and
 - a second lever, wherein the lever acts on the pressure plate indirectly via the first axial bearing and the second lever.
15. The lever system as recited in claim 14, wherein the second lever includes a disk spring.
16. The lever system as recited in claim 14, wherein the pressure plate is part of the clutch.

17. The lever system as recited in claim 1, wherein the fulcrum includes at least one roller body.
18. The lever system as recited in claim 17, wherein the at least one roller body includes at least two roller balls aligned adjacent one another in a pressing direction.
19. The lever system as recited in claim 17, wherein the at least one roller body includes a plurality of cylindrical rollers.
20. The lever system as recited in claim 19, wherein at least two of the plurality of cylindrical rollers are aligned adjacent one another in a pressing direction.
21. The lever system as recited in claim 17, further comprising meander-shaped spring having a changeable diameter and recesses, and wherein the at least one roller body is guided in the recesses.
22. The lever system as recited in claim 21, further comprising a ring-shaped spring having a neutral axis and an inner area, the ring-shaped spring being allocated to the meander-shaped spring at a radially inner area of the meander-shaped spring, the ring-shaped spring capable of swiveling around the neutral axis when a force acts axially on the inner area.
23. The lever system as recited in claim 17, further comprising a spring band actuator allocated for displacing the fulcrum.
24. The lever system as recited in claim 17, further comprising a shaft and a gate configured to displace the fulcrum and disposed eccentrically to a shaft and rotatable concentrically relative to the shaft.
25. The lever system as recited in claim 17, further comprising a concentric cone and an axially operating bearing actuating the concentric cone for displacing the fulcrum.

26. The lever system as recited in claim 17, further comprising a centrifugal force compensating device for displacing the fulcrum.

27. The lever system as recited in claim 1, further comprising:
a holding ring; and
a bridging link, wherein the lever includes a segmented ring having a circular surface and a radial axis and is connected to the holding ring by the bridging link, and wherein the fulcrum includes a rolling body rolling on the circular surface, and wherein the lever swivels around the radial axis due an action of forces on the lever.

28. The lever system as recited in claim 1, further comprising a support and wherein the fulcrum includes at least one roller body having two circumferential surfaces and an axis so that, when the fulcrum is displaced, one of the circumferential surfaces runs on the lever and the other circumferential surface runs on the support.

29. The lever system as recited in claim 1, further comprising a servomotor for displacing the fulcrum.

30. The lever system as recited in claim 29, further comprising a shaft, and wherein the servomotor is an electric motor disposed concentrically to the shaft.

31. The lever system as recited in claim 30, wherein the servomotor is a short electric motor having an upstream double planetary gear and is disposed concentrically to the shaft.

32. The lever system as recited in claim 29, further comprising a disengager, and a controller in operative connection with an automatic transmission, wherein the servomotor is disposed at the disengager and controlled by the controller.

33. The lever system as recited in claim 32, further comprising a hydraulic cylinder for displacing the fulcrum.

34. The lever system as recited in claim 1, further comprising a case having a floor, the lever being disposed in the case, wherein the floor acts as a support and a running surface for the fulcrum.
35. The lever system as recited in claim 34, wherein the case includes stamped sheet metal.
36. The lever system as recited in claim 34, wherein the floor includes a longitudinal profile in a same direction as a displacement of the fulcrum.
37. The lever system as recited in claim 34, further comprising an energy storage mechanism and abutment, the abutment disposed in a corner of the case at a distance from the case floor, an end of the energy storage mechanism facing away from the lever being supported by the abutment.
38. The lever system as recited in claim 37, wherein the abutment hooks into slots of the case.
39. The lever system as recited in claim 38, further comprising a joint bearing between the abutment and the energy storage mechanism.
40. The lever system as recited in claim 39, wherein the lever includes a stamped sheet metal part.
41. The lever system as recited in claim 40, wherein the lever includes profiling extending in a direction of a displacement of the fulcrum.
42. The lever system as recited in claim 41, wherein the energy storage mechanism engages the lever at a third support point.
43. The lever system as recited in claim 42, further comprising a pivot bearing at the third support point.

44. The lever system as recited in claim 1, wherein the fulcrum includes two rollers bodies, each having a hollow interior space, and further comprising a yoke having two ends, each end extending into one of the hollow interior spaces so as to form a kinematically connected double fulcrum.

45. The lever system as recited in claim 44, further comprising an adjusting nut coupled with the yoke.

46. The lever system as recited in claim 45, wherein the adjusting nut is disposed between the double fulcrum.

47. The lever system as recited in claim 46, further comprising an adjusting spindle drivable by an electric motor, wherein the adjusting nut has an internal thread which is engaged by the spindle.

48. The lever system as recited in claim 44, wherein the ends of the yoke have a spherical shape.

49. The lever system as recited in claim 47, wherein the internal thread and a thread of the adjusting spindle are mutually self-locking.

50. The lever system as recited in claim 47, wherein the internal thread and a thread of the adjusting spindle are not mutually self-locking.

51. The lever system as recited in claim 44, further comprising a servomotor and wherein the double fulcrum moves to a predetermined position if the servomotor fails.

52. The lever system as recited in claim 47, wherein the internal thread and a thread of the adjusting spindle are configured to slide with respect to each other.

53. The lever system as recited in claim 52, wherein the threads of the adjusting nut and of the adjusting spindle are equipped with a roller bearing with respect to each other.

54. The lever system as recited in claim 44, wherein the double fulcrum is configured to be guidable.

55. The lever system as recited in claim 44, wherein the double fulcrum is configured to be self-guiding.

56. The lever system as recited in claim 54, wherein the double fulcrum is configured to be positively guided.

57. The lever system as recited in claim 1, wherein the lever system exists in duplicate in a motor vehicle and is used for actuating a double clutch.

58. The lever system as recited in claim 1, wherein the lever system is used in a motor vehicle for an electrically actuatable disk brake.

59. The lever system as recited in claim 3, wherein the energy storage mechanism is displaceable with the fulcrum.